

Reply to Office Action of June 23, 2004
Amendment Dated: September 13, 2004

Appl. No.: 09/785,884
Attorney Docket No.: CSCO-002/94701

REMARKS

Claims 1-50 were examined in the outstanding office action mailed on June 23, 2004 (hereafter "Outstanding Office Action"). All claims 1-50 were rejected in the Outstanding Office Action. By virtue of this response, new claims 51-58 are sought to be added and claim 4 is sought to be amended. The additions and amendment are believed not to introduce new subject matter, and their entry is respectfully requested. Claims 1-58 are thus presented for consideration.

Information Disclosure Statement (IDS)

Applicant thanks the Examiner for considering and making of record the IDS filed on 6/25/2001 (Paper #2). The Examiner is also thanked for noting the same in the Outstanding Office Action.

Claim Rejections Under 35 U.S.C. § 102

Claims 1-4, 8-10, 14-16, 21-23, 25, 29, 30, 35-40, 42 and 46-50 have been rejected under 35 U.S.C. 102(e) as being anticipated by United States Patent Number 6,105,064 issued August 15, 2000 to Davis *et al.* (hereinafter referred to as Davis).

Applicant respectfully submits that Davis does not disclose one or more features of independent claim 1. Applicant's basis for such an assertion is explained below.

Independent claim 1 recites in relevant parts:

1. A method of processing a plurality of keep-alive messages *generated by a corresponding plurality of end systems*, each of said plurality of keep-alive messages being designed to request the status of a corresponding point to point (PPP) session implemented on a communication network, said method comprising:
receiving in an aggregation device said plurality of keep-alive messages;
generating in said aggregation device an aggregated request packet which indicates that the status of said PPP sessions is requested; and
sending said aggregated request packet on said communication network to a peer aggregation device.
(Previously presented claim 1, *Emphasis Added*)

Thus, in a method according to claim 1, each end system generates a corresponding keep-alive message. An aggregation device receives the keep-alive messages and generates an

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aggregated request packet which indicates that the status of the PPP sessions is requested. The aggregated request packet is then sent on a communication network to a peer aggregation device.

From the above, it may be appreciated that keep alive messages are generated by different end systems. Furthermore, the aggregation occurs in an aggregation device, which is different from the end systems which generate the keep-alive messages.

In sharp contrast, Davis does not disclose aggregation of keep-alive messages generated by different end systems, and/or an aggregation device (different from the end systems) which aggregates the keep-alive messages, at least for reasons noted below.

In support of the assertion that Davis does not disclose an aggregation device as in claim 1, applicant notes that Davis is directed to "placing packets on network for transmission from *sending endnode* to *receiving endnode* at times which are determined by window size and metering interval" (from the Title of Davis, *Emphasis Added*).

In other words, the teachings of Davis are related to processing at endnodes only. Such a conclusion is further supported by Figure 2 of Davis, in which sending end node 32 is shown along with receiving endnode 34.

In support of the assertion that Davis does not disclose aggregation of keep alive messages generated by different end systems, it is noted that the disclosure of Davis relates to sessions/connections established between two endnodes only (at least for reasons noted above). Each endnode of Davis appears to process data received from only the other endnode (i.e., only one end system, even assuming arguendo that the endnode of Davis is akin to the end system of claim 1). Accordingly, Davis does not suggest aggregation of data related to multiple end systems.

At least for some of the reasons noted above, it is asserted that Davis does not anticipate the invention of claim 1. Withdrawal of the rejection under 102(e) with respect to claim 1 is respectfully requested. The other references in the art of record are believed not to fill the deficiency. Claim 1 accordingly is believed to be allowable over the art of record.

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Claims 2-9 and 51 are also allowable at least as being dependent from an allowable base claim 1.

Claim 2 is believed to be independently allowable for the following reasons. Claim 2 recites in relevant parts:

5 receiving *said aggregated request packet* in said peer aggregation device;
 indicating the status of said plurality of sessions in an aggregated reply
 packet; and
 sending said aggregated reply packet to said aggregation device.
 (Pending claim 2, *Emphasis Added*)

10 Thus, a method in accordance with claim 2 indicates the status of the multiple sessions in
an aggregated reply packet, and the aggregated reply packet is sent to the aggregation device.
As recited in claim 1 (from which claim 2 depends), the aggregated request packet indicates that
the status of the PPP sessions is requested.

15 Davis does not disclose such an aggregated reply packet. In the Outstanding Office
Action, the Examiner had indicated that Column 60 lines 45-53 of Davis anticipates the claimed
element "indicating the status of said plurality of sessions in an aggregated reply packet" of claim
2.

20 It is respectfully noted that Line 33 Column 59 through Line 56 Column 60 of August 5,
2004 Davis relate to 'Packet Acknowledgment'. The acknowledgments acknowledge the packets
accurately received, not indicate "the status of the ... sessions" as claimed in claims 1 and 2.

Even assuming *arguendo* that the acknowledgment of Davis is akin to the status
information of claims 1 and 2, there does not appear to be any suggestion of including in the
aggregated reply packet *the status of the sessions requested in the aggregated request packet*
(*Emphasis Added*) which was generated by the aggregation device, as recited in claims 1 and 2.

25 In this regard, it is noted that the acknowledgment of Davis is generated in response to
'acknowledgment update events', which are further described in Davis as noted below:

 In addition to using the window update size, during the acknowledging
step 54 one embodiment of the receiving endnode 34 *uses occurrence of an*

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5 *acknowledgment update event and piggybacking opportunities to trigger transmission of an ack* to the sending endnode 32. Each time *the sending endnode 32* changes the current send window size during the adjusting step 62 it selects a new value for the acknowledgment update event and *sends the new value* to the receiving endnode 34. The value may be *a time interval or a packet count*. The value is selected such that the sending endnode 32 will not stop sending data packets due to excessive delay by the receiving endnode 34 in acknowledging received packets.

(Col 59 Line 54 to Col 60 Line 42 of Davis, *Emphasis Added*)

10 From the above, it may be appreciated that the action from some other endnode (or external device) triggering an acknowledgment in Davis is the acknowledgment update event, which is based on a value sent by the other end node. At least since it is a value, contrary to the feature of claim 2 (in which status of session requested in the aggregate request packet are included in the reply packet), the acknowledgment update event would not contain (identities of)
15 session for which status information is requested.

 Thus, Davis (alone or in combination with other references of record) neither teaches nor suggests one or more features of claim 2. Claim 2 is accordingly believed to be independently allowable over the art of record. Claim 3 is also allowable at least for similar reasons. Withdrawal of rejections with respect to claims 2 and 3 is also respectfully requested.

20 Claim 4, at least as sought to be amended, is also independently allowable over Davis. Claim 4 recites in relevant parts, "sending from said aggregation device a proxy keep-alive reply message to one of said plurality of end systems originating a corresponding one of said keep alive-messages without waiting for said aggregated reply packet."

25 Thus, a method according to amended claim 4 sends from the aggregation device a proxy keep-alive reply message an end system originating the keep-alive message without waiting for the aggregated reply packet (from peer aggregation device recited in claim 3). That is, for the operation of a method according to claim 4, there are three devices (i.e., end system generating a keep-alive message, the aggregation device generating the aggregated request packet and a peer aggregation device generating the aggregated reply packet) in play.

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It is respectfully pointed out that Davis discloses only two endnodes, and the "update acknowledgment events" (noted in Column 60, lines 43-53, a portion of which is relied upon by the Examiner in rejecting claim 4) appear to be internally generated within the endnode, not in a third device (peer aggregation device in amended claim 4) as noted above.

5 **Claim Rejections Under 35 U.S.C. § 103**

Claims 5-7, 11, 13, 17-19, 24, 26, 28, 31, 32, 34, 41, 43, and 45 have been rejected under 35 U.S.C. 103 (a) as being unpatentable over Davis, in view of United States Patent Number 5,964,837 issued October 12, 1999 to Chao *et al.* (hereinafter referred to as Chao). Claims 12, 20, 27, 33, and 44 have been rejected under 35 U.S.C. 103 (a) as being unpatentable over the
10 combination of Davis and Chao in view of Simpson ("RFC 1661: Point-to-point Protocol," July 1994) (hereinafter referred to as Simpson).

Applicant traverses the rejections at least in that Davis does not disclose some of the features relied upon by the Examiner for the 102(E) rejections, for reasons noted above.

In addition, claim 51 is allowable independently over Chao individually and also in
15 combination with other references/art of record, at least in for the reason that the claim recites that "... said aggregation device is in the path of all of said plurality of PPP sessions." From Figure 1 of Chao, the management station is shown outside of the communication network, and thus appears to not be present in the path of the claimed PPP sessions. Accordingly claim 51 is believed to be independently allowable over the art of record.

20 Claim 10 is also allowable at least for reasons noted above with respect to claim 2. Claims 11-14 and 52 are also allowable at least as depending from an allowable base claim. Claims 15-50 and 53-57 are also allowable at least for some of the reasons noted above.

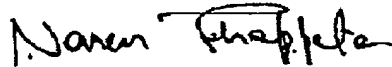
Therefore, Applicant respectfully submits that all the objections/rejections of record are
25 believed to be overcome, and all the claims presented for consideration are allowable over the art of record.

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The Examiner is invited to telephone the undersigned representative if it is believed that an interview might be useful for any reason.

Respectfully submitted,



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